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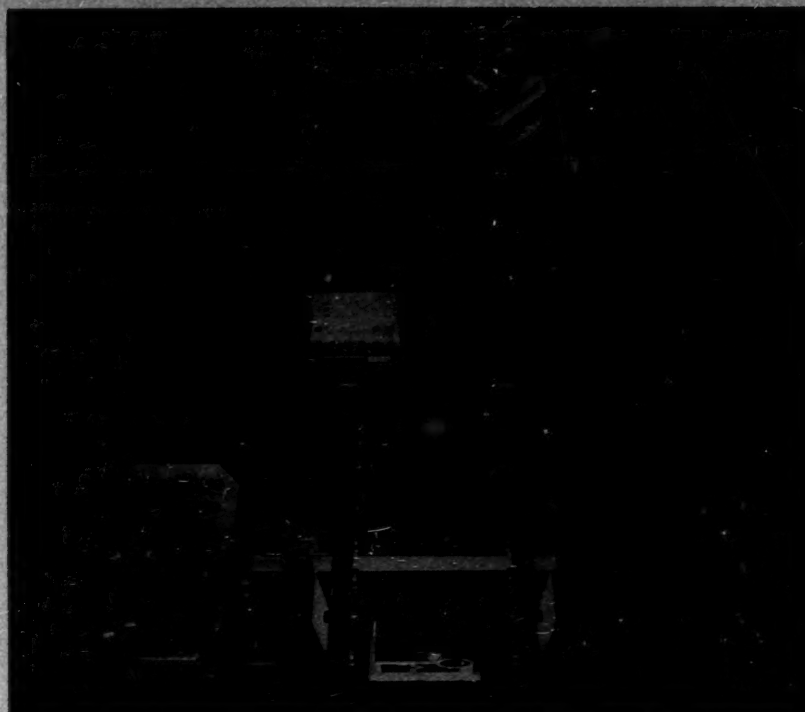
FITTING AN FMS INTO THE SMALL PLANT



NISSAN IN TENNESSEE:
AMERICAN MANAGERS USE JAPANESE
TECHNOLOGY TO BUILD CARS AND TRUCKS

THE TRADE BILL SPARKS A BATTLE
BETWEEN REAGAN AND THE CONGRESS

IRON AGE
MANUFACTURING MANAGEMENT

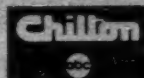


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MATERIALS PRICES

PRICE & PRODUCTION DATA

(Effective June 30, 1986)

Steel production by districts, thousands of tons
(000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
Northeast Coast	169	168	173	180
Pittsburgh	205	208	232	224
Youngstown	98	104	103	81
Lake Erie	88	82	115	122
Detroit	145	145	157	111
Chicago	408	423	470	467
Midwest	170	168	166	164
Southern	183	175	201	202
Western	84	81	86	90
U.S. Production	1,550	1,554	1,703	1,641

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower lake ports unless otherwise stated. Rail transportation, handling and unloading may be charged to buyer. Coarse ore 80y premium.

Pellets (per iron unit natural)	gross-ton 58.0*
Pellets (per iron unit natural)	gross-ton 59.4**
Pellets (per iron unit natural)	gross-ton 72.5-86.9***
Mesabi, regular-unscreened	gross-ton \$32.53
Mesabi, non-bessemer	gross-ton \$30.03-31.53

*58.0g—Mineral Services, 8/13/85. **59.4g—Inland Steel Mining, 1/1/85 and Pickands Mather, 8/1/85, delivered hold of vessel, upper lake ports. ***72.5g—U.S. Steel, 8/16/85. 86.9g—Oglebay Norton 3/25/82; Hanna Mining and Cleveland-Cliffs 2/26/82.

NONFERROUS PRICES

(Effective June 30, 1986) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer, unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	52.44	53.06	6/30/86
Copper (C)	64.00- 68.00	64.50- 68.50	6/27/86
Lead	22.50- 24.00	24.00	6/25/86
Magnesium Ingot	153.00	148.00	12/9/85
Nickel (LME)	185.31	186.13	6/30/86
Zinc	41.00	38.00- 41.00	6/17/86

ALUMINUM: Avg. for last week & previous week. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, delivered. NICKEL: Avg. for last week & previous week. ZINC: high grade.

Antimony, American Laredo, Texas	\$2.00
Beryllium-aluminum 5% Be, per lb. contained Be	\$236.00
Beryllium-copper, per lb. cont. Be	\$144.00
Beryllium 97% powder 200	\$197.00
Cadmium, ton lots	\$1.00
Calcium, ton lots, crown	\$3.92
Chromium, 99.5% electro	\$4.62
Cobalt, 99% cathode	\$11.70
Gold per troy oz.	\$346.75
Indium, dollars per troy oz.	\$2.65
Iridium, dollars per troy oz.	\$415.00
Magnesium sticks, 10,000 lbs.	\$2.02
Mercury, per 7.6-lb., f.o.b. N.Y.	\$260.00-280.00
Molybdenum, lb. tech. moly oxides, 20 lb. MO can	\$3.25
Palladium, per troy oz.	\$112.00

STEEL PRODUCTION, COMPOSITE PRICES

(Effective June 30, 1986)

U.S. Steel Production

	Last Week	Two Weeks Ago	To Date 1986	To Date 1985
Net tons, in thousands	1,550	1,554	44,528	44,178
Capability Utilization Rate	62.7	62.8	70.1	67.0

Composite Prices

	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (\$/lb.—eff. 5/19/86)	24.850	24.850	24.850	27.582
Pig Iron** (Net ton= 2000 lbs.)	\$213.00	\$213.00	\$213.00	\$213.00
Scrap No. 1 hvy.*** (Gross ton=2240 lbs.)	\$71.17	\$70.83	\$70.83	\$67.50
No. 2 bundles	\$52.17	\$52.17	\$51.50	\$48.17

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh	\$70.50	\$69.50	\$69.50	\$72.50
No. 1 steel, Philadelphia	71.50	71.50	71.50	68.50
No. 1 steel, Chicago	71.50	71.50	71.50	61.50
No. 1 bundles, Detroit	62.50	57.50	57.50	61.50
Low Phos., Youngstown	71.50	68.50	68.50	57.50
No. 1 mach'y cast., Pgh	74.50	73.50	73.50	71.50
No. 1 mach'y cast., Phila	93.50	93.50	93.50	91.50
No. 1 mach'y cast., Chi	105.50	105.50	105.50	99.50

*Finished Steel Composite: Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

**Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.

***Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Platinum, per troy oz.	\$439.00
Rhodium, per troy oz.	\$1,160.00
Silver ingots, per troy oz.	\$5.125
Titanium sponge, melt grade	\$3.40-3.55
Tungsten powder, hyd red.	\$9.50-9.85
Vanadium	\$6.00
Zirconium sponge	\$12.00-17.00

(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb. EX-SMELTER, based on daily market in Kuala Lumpur in Malaysian dollars per kilo.)

June 23—243.09	June 19—242.37
June 24—243.86	June 20—242.24
June 25—243.66	

Scrap Prices

Brass Mill Scrap

(Cents per lb; over 20,000 lbs. add 1¢ per lb)

	Solids	Turnings
Copper	62	53
Yellow brass	53 1/4	47 1/2
Red brass	57	50 1/4
Comm. bronze	59	51
Mang. bronze	43	42
Free cutting rod ends	49	48

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	56
No. 2 copper wire	48
Light copper	39

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	52
No. 2 copper wire	44
Light copper	35
No. 1 composition	45
No. 1 comp. turnings	44
Hvy. yellow brass solids	30
Hvy. yellow brass turnings	26
Radiators	34

Aluminum		
New mixed clips	33	—34
Old sheet	31	—32
Old cast	31	—32
Clean dry borings	32	—33

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	28	—29
Mixed L.C. clips	26	—27
Old sheets and cast	23	—24
Borings and turnings	20	—21
Duraluminum clippings	24	—25

Copper and Brass

No. 1 copper wire	47	—49
No. 2 copper wire	38	—39
Light copper	32	—34
Radiators	28	—29
No. 1 composition	38	—39
No. 1 composition turnings	35	—36
Cocks and faucets	28	—29
Clean heavy yellow brass	27	—28
Brass Pipe	28	—29
New soft brass clippings	38	—40

Lead

Heavy soft lead	5	—7
Whole batteries	1	—3
Type metal	15	—17
Electrotype	13	—14

Nickel

Nickel solids	110	—120
Nickel rod ends	110	—120
Nickel sheets, clips	110	—120
Nickel turnings	25	—35

Zinc

New zinc clippings	15	—16
Old diecast zinc	11	—12

EFFECTIVE JUNE 30, 1986

(Effective June 30, 1986) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of Iron Age editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	\$ 70.00 to \$ 71.00
No. 2 hvy. melting	60.00 to 61.00
No. 1 dealer bundles	86.00 to 87.00
No. 1 to 2 bundles (auto)	90.00 to 91.00
No. 2 bundles	46.00 to 47.00
No. 1 busheling	83.00 to 84.00
Machine shop turnings	8.00 to 9.00
Shoveling turnings	43.00 to 44.00
Cast iron borings	42.00 to 43.00
Low phos. punchings plate	100.00 to 101.00
Heavy turnings	60.00 to 61.00
No. 1 RR hvy. melting	81.00 to 82.00
Scrap rails, 18 in. & under	93.00 to 94.00
RR specialties	80.00 to 81.00
No. 1 machinery cast	74.00 to 75.00
Cupola cast	67.00 to 68.00
Heavy breakable cast	30.00 to 31.00
Stainless	
18-8 bundles and solids	520.00 to 530.00
18-8 turnings	420.00 to 430.00

Chicago

No. 1 hvy. melting	\$ 71.00 to \$ 72.00
No. 2 hvy. melting	67.00 to 68.00
No. 1 dealer bundles	82.00 to 83.00
No. 1 factory bundles (auto)	78.00 to 79.00
No. 2 dealer bundles	54.00 to 55.00
No. 1 busheling	77.00 to 78.00
Shredder scrap	77.00 to 78.00
Machine shop turnings	27.00 to 28.00
Mixed borings and turnings	22.00 to 23.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	41.00 to 42.00
Low phos. forge scrap	97.00 to 98.00
Low phos. punchings plate	
1/4 in. and heavier	112.00 to 113.00
Low phos. 2 ft. and under	106.00 to 107.00
No. 1 RR hvy. melting	75.00 to 76.00
Scrap rails random lgh	79.00 to 80.00
Roller rails	104.00 to 105.00
Rails, 2 ft. and under	99.00 to 100.00
RR couplers and knuckles	90.00 to 91.00
RR car axles	104.00 to 105.00
No. 1 machinery cast	105.00 to 106.00
Cupola cast	92.00 to 93.00
Stove plate	97.00 to 98.00
Steel car wheels	87.00 to 88.00
Stainless	
18-8 bundles and solids	485.00 to 495.00
18-8 turnings	400.00 to 410.00
430 bundles and solids	125.00 to 135.00
430 turnings	85.00 to 95.00

Philadelphia

No. 1 hvy. melting	\$ 70.00 to \$ 73.00
No. 2 hvy. melting	62.00 to 65.00
No. 1 dealer bundles	80.00 to 83.00
No. 2 dealer bundles	52.00 to 55.00
No. 1 busheling	81.00 to 83.00
Shredder scrap	82.00 to 85.00
Machine shop turnings	24.00 to 27.00
Mixed borings and turnings	24.00 to 27.00
Shoveling turnings	37.00 to 40.00
Low phos. 5 ft. and under	74.00 to 77.00
Low phos. 2 ft. punchings	93.00 to 94.00
Electric furnace bundles	85.00 to 88.00
RR specialties	74.00 to 77.00
Rails, 2 ft. and under	94.00 to 97.00
Cupola cast	85.00 to 88.00
Heavy breakable cast	53.00 to 56.00
No. 1 machinery cast	82.00 to 95.00

Detroit

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$ 52.00 to \$ 53.00
No. 2 hvy. melting	50.00 to 51.00
No. 1 dealer bundles	62.00 to 63.00
No. 2 dealer bundles	61.00 to 62.00
No. 1 busheling	61.00 to 62.00
Drop forge flashings	42.00 to 43.00
Machine shop turnings	28.00 to 29.00
Mixed borings and turnings	8.00 to 9.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	21.00 to 22.00
Heavy breakable cast	32.00 to 33.00
Mixed cupola cast	47.00 to 48.00
Automobile cast	71.00 to 72.00
Stainless	
18-8 bundles and solids	480.00 to 490.00
18-8 turnings	345.00 to 355.00
430 bundles and solids	115.00 to 125.00

Youngstown

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 57.00 to \$ 58.00
No. 2 hvy. melting	55.00 to 56.00
No. 1 dealer bundles	72.00 to 73.00
No. 2 dealer bundles	35.00 to 36.00
Machine shop turnings	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
Low phos. plate	71.00 to 72.00
Electric furnace bundles	60.00 to 61.00
Galvanized bundles	58.00 to 59.00

Cleveland

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 55.00 to \$ 56.00
No. 2 hvy. melting	53.00 to 54.00
No. 1 dealer bundles	74.00 to 77.00
No. 1 factory bundles	71.00 to 72.00
No. 2 bundles	32.00 to 33.00
No. 1 busheling	66.00 to 67.00
Machine shop turnings	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	17.00 to 18.00
Cut structural & plates,	
5 ft. and under	67.00 to 68.00
Cut structural & plates,	
2 ft. and under	88.00 to 89.00
Low phos. punchings plate	88.00 to 89.00
Foundry steel, 2 ft. & under	53.00 to 54.00
No. 1 RR hvy. melting	59.00 to 60.00
Rails, 2 ft. and under	88.00 to 89.00
Rails, 18 in. and under	90.00 to 91.00
No. 1 machinery cast	79.00 to 80.00
Mixed cast	46.00 to 47.00
Stainless	
18-8 bundles	480.00 to 490.00
18-8 turnings	350.00 to 360.00
430 bundles	120.00 to 130.00

Buffalo

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 50.00 to \$ 51.00
No. 2 hvy. melting	40.00 to 41.00
No. 1 busheling	64.00 to 67.00
No. 1 dealer bundles	64.00 to 67.00
No. 2 bundles	29.00 to 30.00
Machine shop turnings	13.00 to 14.00
Mixed boring and turnings	13.00 to 14.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	23.00 to 24.00
Low phos. plate	74.00 to 75.00
Structural and plate,	
2 ft. and under	75.00 to 76.00
Rails, 2 ft. and under	75.00 to 76.00
Scrap rails, random lgh	61.00 to 62.00
No. 1 machinery cast	74.00 to 75.00
No. 1 cupola cast	71.00 to 72.00

St. Louis

No. 1 hvy. melting	\$ 67.00 to \$ 68.00
No. 2 hvy. melting	52.00 to 53.00
No. 1 busheling	79.00 to 80.00
No. 1 dealer bundles	77.00 to 78.00
No. 2 bundles	44.00 to 47.00
Machine shop turnings	17.00 to 18.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	27.00 to 28.00
No. 1 RR hvy. melting	73.00 to 74.00
Rails, random length	74.00 to 75.00
Rails, 18 in. and under	97.00 to 98.00
RR specialties	74.00 to 75.00
Cupola cast	88.00 to 90.00
Heavy breakable cast	43.00 to 44.00
Stove plate	89.00 to 90.00
Steel car wheels	78.00 to 79.00
Scrap rails	99.00 to 100.00
Unstripped motor blocks	54.00 to 55.00

Birmingham

No. 1 hvy. melting	\$ 68.00 to \$ 69.00
No. 2 hvy. melting	64.00 to 65.00
No. 1 dealer bundles	68.00 to 69.00
No. 2 bundles	44.00 to 45.00
No. 1 busheling	68.00 to 69.00
Shredder scrap	84.00 to 87.00
Machine shop turnings	23.00 to 24.00
Shoveling turnings	36.00 to 37.00
Cast iron borings	36.00 to 37.00
Electric furnace bundles	65.00 to 66.00
Elec. furnace, 3 ft. & under	48.00 to 49.00
Structural and plate, 2 ft.	87.00 to 88.00
Structural and plate, 4 ft.	81.00 to 82.00
No. 1 RR hvy. melting	81.00 to 82.00
Scrap rails, random lgh	70.00 to 71.00
Rails, 2 ft. and under	85.00 to 86.00
Angles and splice bars	81.00 to 82.00
No. 1 cupola cast	82.00 to 83.00
Unstripped motor blocks	72.00 to 73.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 50.00 to \$ 51.00
No. 2 hvy. melting	49.00 to 50.00
No. 1 dealer bundles	64.00 to 65.00
No. 2 bundles	32.00 to 33.00
Machine shop turnings	9.00 to 10.00
Shoveling turnings	12.00 to 13.00
Cast iron borings	19.00 to 20.00
Low phos. 18 in. and under	75.00 to 76.00
Rails, random length	59.00 to 60.00
Rails, 2 ft. and under	75.00 to 76.00
No. 1 cupola cast	44.00 to 45.00
Heavy breakable cast	25.00 to 26.00
Drop broken cast	46.00 to 49.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 40.00 to \$ 42.00
No. 2 hvy. melting	33.00 to 34.00
No. 1 dealer bundles	20.00 to 24.00
Mixed borings and turnings	10.00 to 11.00
Machine shop turnings	4.00 to 4.00
Shoveling turnings	10.00 to 12.00
Clean cast, chem. borings	35.00 to 36.00
No. 1 machinery cast	79.00 to 80.00
Mixed yard cast	50.00 to 51.00
Heavy breakable cast	10.00 to 12.00
Stainless	
18-8 prepared solids	440.00 to 460.00
18-8 turnings	340.00 to 360.00
430 prepared solids	90.00 to 100.00
410 solids	75.00 to 85.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 49.00 to \$ 51.00
No. 2 hvy. melting	39.00 to 41.00
No. 1 dealer bundles	50.00 to 52.00
No. 2 bundles	32.00 to 34.00
No. 1 busheling	54.00 to 56.00
Shredder scrap	12.00 to 14.00
Machine shop turnings	18.00 to 20.00
Shoveling turnings	72.00 to 77.00
No. 1 machinery cast	44.00 to 46.00
Mixed cupola cast	8.00 to 10.00
Heavy breakable cast	8.00 to 10.00

San Francisco

No. 1 hvy. melting	\$ 40.00 to \$ 42.00
No. 2 hvy. melting	34.00 to 36.00
No. 1 dealer bundles	31.00 to 33.00
No. 2 dealer bundles	20.00 to 21.00
Machine shop turnings	8.00 to 9.00
Cast iron borings	8.00 to 9.00
No. 1 cupola cast	80.00 to 82.00

Los Angeles

No. 1 hvy. melting	\$ 34.00 to \$ 36.00
No. 2 hvy. melting	28.00 to 30.00
No. 1 dealer bundles	24.00 to 26.00
No. 2 dealer bundles	16.00 to 18.00
Machine shop turnings	9.00 to 10.00
Shoveling turnings	10.00 to 11.00
Cast iron borings	8.00 to 9.00
Elec. furnace, 1 ft. and under	67.00 to 69.00
foundry	72.00 to 74.00
No. 1 cupola cast	72.00 to 74.00

Seattle

No. 1 hvy. melting	60.00 to 62.00
No. 2 hvy. melting	51.00 to 53.00
No. 2 bundles	35.00 to 37.00
No. 1 cupola cast	89.00 to 90.00
Mixed yard cast	80.00 to 82.00

Hamilton, Ont.

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 74.00
No. 2 hvy. melting, cut 2 ft. and under	67.00
No. 1 dealer bundles	82.00
No. 2 bundles	58.00
Mixed steel scrap	53.00
Bush. new fact. prop'd	77.00
Bush. new fact. unprop'd	60.00
Machine shop turnings	30.00
Short steel turnings	30.00
Mixed borings and turnings	19.00
Cast scrap	92.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	\$ 59.00 to \$ 60.00
No. 2 hvy. melting	49.00 to 50.00
No. 1 dealer bundles	33.00 to 34.00
No. 2 bundles	11.00 to 12.50
Machine shop turnings	24.00 to 25.00
Crushed turnings	67.00 to 68.00
Shredder scrap	91.00 to 92.00
Cut structural plate, 2 ft. and under	67.00 to 68.00
Cut structural plate, 5 ft. and under	54.00 to 55.00
Unstripped motor blocks	81.00 to 82.00
Cupola cast	81.00 to 82.00

PRICES FIRMING UP? NO, NOT YET

Producer prices in May showed some signs of firming.

In May, the U.S. Labor Department's producer price index for finished goods rose for the first time in five months. The May index was up 0.6 pct.

During the preceding four months, there was an average monthly *decline* of 1.0 pct.

But don't be fooled. Any real firming of prices has not yet happened.

Most of the turnaround in finished goods prices in May was caused by a slowdown in the price climb of finished energy goods. These prices in May rose by 4.2 pct, following an 8.4 pct rise in April. If these prices are excluded, then no signs of firming are yet seen across the broad spectrum of industry wholesale prices.

The continuing price softness is seen clearly in the table here. There are 22 key metalworking product lines shown. In May, 14 of the products showed either no month-to-month changes in prices or actual declines.

And, for the eight product lines showing higher prices in May over April, 5 of them had increases of only 0.1 pct.

Prices of capital equipment in May rose by only 0.1 pct, down from a 0.3 pct rise in each of the previous two months. Price softness for these goods is understandable in view of cooled demand for capital equipment. Business investment has slowed sharply in recent months.

Through the first five months this year, producer prices declined at a seasonally adjusted annual rate of 7.6 pct. That is the softest price performance over such a time span since the Labor Department began keeping its price index in 1947.

Latest Month Covered: May 1986

Products	Index Reading For Month (1967 = 100)	Pct Change From Previous Month	Pct Change From Year-Ago Month
Metal Cutting Machine Tools	400.1	- 0.1	+ 0.9
Metal Forming Machine Tools	438.9	+ 0.1	+ 1.6
Agricultural Machinery & Equip.	339.4	0	+ 0.3
Construction Machinery & Equip.	366.3	+ 0.1	+ 1.2
Oil and Gas Field Machinery	424.0	0	- 0.6
Industrial Material Handling Equip.	296.4	+ 0.1	+ 0.6
Pumps, Compressors & Allied Equip.	359.6	- 0.4	+ 1.0
Mining Machinery & Equipment	379.7	- 0.6	0
Mechanical Power Transmission Equip.	343.1	- 0.2	+ 1.5
Automobiles	233.3	+ 0.2	+ 2.3
Motor Trucks - Light	313.0	- 0.1	+ 5.9
Motor Trucks - Heavy	344.0	+ 1.1	+ 3.2
Railroad Equipment	364.5	- 0.3	+ 0.5
Fabricated Metal Structural Products	314.9	- 0.1	+ 0.1
Electric Motors	351.8	+ 0.6	0
Valves & Fittings (Dec. 1982 = 100)	106.6	- 0.6	+ 2.0
Ball & Roller Bearings	355.7	0	+ 1.0
Foundry & Forge Shop Products	364.8	- 0.1	+ 0.6
Heating Equipment	266.8	- 0.2	+ 2.8
Plumbing Fixtures & Brass Fittings	322.9	+ 0.1	+ 3.3
Metal Containers	361.1	+ 0.1	+ 0.9
Internal Combustion Engines	362.5	- 0.1	+ 3.6

Data based on U.S. Labor Dept.'s Producer Price Index